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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,711	09/22/2003	Karl-Heinz Aleksander Ostojka Starzewski	PO7795/LeA 36,276	1415

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EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,711

Applicant(s)

STARZEWSKI ET AL.

Examiner

Caixia Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-7,9,19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,10-18 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1. The request for continued examination (RCE) under 37 C.F.R. § 1.114 is acceptable. An action on the RCE follows. Currently claims 1-26 are pending, wherein claims 1-7, 9, and 19-20 are withdrawn due to restriction requirement and claims 8, 10-18, and 21-26 are under examination.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 8, 10-18, and 21-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of molar mass of M_n of the instant claims is new matter. Applicants are reminded that M_η represents viscosity molecular weight while M_n represents number average molecular weight. M_n and M_η are different types of molecular weight, and M_η is larger than M_n in general.

Assuming that the "molar mass M_n " is amended to "mean molar mass M_η ", the limitation still introduces new matter to the instant claims because the molecular weight

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limitation of the “mean molar mass M_n greater than 500 kg/mol” only applies to those elastomers listed in the last paragraph on page 26 of the specification rather than any polymers prepared from the unsaturated monomers of the instant claims.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8, 10-18, and 21-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 21, and 22

The limitation of “a molar mass M_n greater than 500 kg/mol” is improper. In general, the molecular weight of a polymer composition is measured by the number average molecular weight, applicants need to specify whether the “molar mass M_n greater than 500 kg/mol” is the average molar mass.

Claims 23-26

In each of claims respectively, the term “elastomer” does not have antecedence.

Claim 24

The compositions represented by abbreviations of EPDM, EBDM, EHDM, and EODM are not defined, the complete descriptions of those elastomers should be disclosed in the claims.

Claim 26

(i) The instant claim further limits the elastomer to have multimodal molecular weight distribution. A elastomer with multimodal molecular distribution should have

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multiple average molar mass M_n , however, only one molar mass M_n is provided in the independent claim 22. Therefore, it is not clear what the M_n is representing here.

Clarification is requested.

(ii) The term "weigh" should be replaced with --weight--.

Claim Rejections - 35 USC § 103

7. Claims 8, 10-18 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostoja-Starzewski et al. (US 6,353,064, hereinafter referred as Ostoja).

The instant claims are directed to a polymerization process of unsaturated monomers in the presence of a metallocene complex, wherein the metallocene complex have at least one donor-acceptor interaction between two of its ligands, at least one of the ligand is fluorenyl ligand and at least one alkyl or aryl group is on at least one acceptor atom; wherein, the polymerization is conducted at a temperature from -60 to 250 °C and the polymer produced have a number molecular weight [sic] greater than 500 kg/mol.

Ostoja teaches an olefin polymerization process in the presence of metallocene complex having one donor-acceptor interaction between two of its ligands at temperature range of 45 to 250 °C. See formula (Ia) of col. 2, lines 35-40, col. 14, lines 15-67, col. 16, lines 33-42, and Examples 1-8. When Cpl or CpII of formula (Ia) is fluorenyl (col. 3, lines 49-50) and the acceptor group is alkylboranyl or arylboranyl (col. 12, lines 44-52), Ostoja's metallocene complex read on those metallocene complexes of the instant claims. Among Ostoja's working examples, only Example 1 disclosed the

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mean molar mass M_n of 402 kg/mol which is lower than the than 500 kg/mol of the instant claims. However, it is noted that activator such as alumoxane is not used in the working examples. Activator such as alumoxane are known in the art of olefin polymerization in the presence of metallocene catalyst for its ability of increasing molecular weight of the polyolefin. Use of aluminoxane as activator are taught in Ostoja (col. 14, lines 15-45).

Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Ostoja's teaching to conduct olefin polymerization in the similar conditions as shown the working examples by replacing the metallocene complex with the metallocene complex Ia) wherein Cpl or CplI of formula (Ia) to be fluorenyl and acceptor group to be alkylboranyl or arylboranyl and adding aluminoxane as the activator to provide a polymer with increased molecular weight since such within the scope of Ostoja's teaching and expected to work and in the absence of any showing of criticality and unexpected results.

Response to Arguments

8. Applicant's arguments with respect to the rejected claims of record have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The

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fax numbers for the organization where this application or proceeding is assigned is (703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.
Primary Examiner
January 21, 2005